

**ABSTRACT**

The present invention is directed to a swaged catalyst regenerator and processes for using the catalyst regenerator. In one embodiment, the swaged catalyst regenerator includes a regeneration zone having a first major diameter and into which a regeneration medium and an at least partially coked catalyst from a reactor can be fed. The catalyst regenerator also includes a separation zone having a second major diameter. The separation zone is provided to separate entrained catalyst from gaseous components, e.g., combustion products of a regeneration process, and return the entrained catalyst to the regeneration zone. The ratio of the second major diameter to the first major diameter is at least 1.1, 1.4, 1.7, 2.0, 2.3, 2.6 or 2.9. By providing a catalyst regenerator having these characteristics, desirable regeneration characteristics that minimize entrained catalyst loss can be achieved.